

Your reference: 2003P14050WORU
Our reference: 2412-136283RU/5042
Application No.: 2006116893
Attorney Name: Yury D. Kuznetsov

OUR COMMENTS
to the Decision on Grant a Patent for Invention

We are glad to inform you that the Russian Patent and Trademark Office (RPTO) has decided to grant a Patent for your invention. Enclosed we provide you with a copy of the original Russian version and a corresponding English translation of the Decision on Grant issued by the RPTO with respect to your above-referenced application.

1). Having carefully studied the Decision, we have stated that the allowable claims are completely the same as the amended claims filed with our response to the previous Office Action in accordance with your instructions set forth in the letter dated 30 October 2007. Please note also that the abstract was amended by the RPTO Examiner and translated by us for your approval.

2). Please be advised that, with issuance of the Decision on Grant, any further amendments of the allowable claims become impossible in proceedings on the present application (with the exception of obvious technical errors), but may be affected, if desired, in a divisional application filed before a patent granted for this application is registered in the State Patent Register. Such registration normally takes place about one-two months after issuance fees are paid. However, we recommend you to inform us before payment of the issuance fees that you intend to file a divisional application, since no extensions or postponing of the registration date are possible.

3). The RPTO Examiner has cited several relevant documents in the end of Decision under the index (56). Please, let us know whether you want us to order copies of any of the Russian references cited therein, i.e. the Russian Patents Nos. RU 2147624 (D2) and RU 2149202 (D3). However, please be advised that the documents D1 and D2 correspond to WO 96/12049 and WO 97/07252 in the name of SIEMENS AG.

In conclusion, we kindly ask you to analyze the Decision on Grant, including the set of allowable claims, the cited documents and the abstract enclosed, and to provide us with appropriate instructions so we would be able to prepare a due response in timely manner. Please, let us know if you need any further commentary or advice regarding prosecution of the present application.



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TRANSLATION

**FEDERAL SERVICE ON INDUSTRIAL PROPERTY, PATENTS AND TRADE MARKS
(ROSPATENT)**

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To No. 2412-136283RU/5042 of 18.12.2007
(21) Our No. 2006116893/02(018370)

In correspondence, please refer to the application
number and report a receipt date of this communication

To "Gorodissky & Partners" Law firm Ltd.,
B. Spasskaya str., 25, stroenie 3, Moscow,
129090, Russia
Patent attorney Yu. D. Kuznetsov, reg. No. 595

FGU FIIP
09 JAN 2008
Department 02

**DECISION ON GRANT
A PATENT FOR INVENTION**

(21) Application No. 2006116893/02(018370)

(22) Application filing date 08.09.2004

As a result of the substantive examination of the present application for invention, it has been
stated that

☒ the claimed invention

☐ the claimed group of inventions

relates to the objects of patent rights and complies with the patentability conditions stipulated by
the Civil Code of the Russian Federation and, in view of this, a decision to grant a patent for the
invention has been taken.

A Report on Examination Results is enclosed.

Enclosure: on 5 sheets in 1 copy.

Head

Signature

B.P. Simonov



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REPORT ON EXAMINATION RESULTS

(21) Application No. 2006116893/02(018370) (22) Application filing date 08.09.2004
(24) Date from which the patent will be valid 08.09.2004
(85) Date of consideration commencement for the International application in the national phase 17.05.2006

PRIORITY IS SET ON THE DATE OF:

- ☐ (22) filing the application
☐ (23) filing additional materials to the earlier application No.
☐ (62) ☐ priority of the original application No. from which the present application has been divided up
☐ ☐ filing the original application No. from which the present application has been divided up
☐ (66) filing the earlier application No.
☒ (30) filing the priority application(s) in the Paris Convention Member Country
(31) priority application number (32) priority application filing date (33) Country code Claims
- | | | | |
|----|------------|------------|----|
| 1. | 03023644.2 | 17.10.2003 | EP |
|----|------------|------------|----|

(86) PCT-Application PCT/EP2004/010025 of 08.09.2004

(87) PCT-Application publication number and date WO2005/042802 of 12.05.2005

(72) Inventor(s) STAMM, Werner, DE

(73) Patentee(s) SIEMENS AKTIENGESELLSCHAFT, DE

(54) Title of invention PROTECTIVE LAYER FOR THE PROTECTION OF A COMPONENT AGAINST CORROSION AND OXIDATION AT ELEVATED TEMPERATURES, AND COMPONENT

As a result of the substantive examination conducted with respect to ☐ the original set of claims ☒ the set of claims amended by the Applicant, the concordance of ☐ the claimed invention ☒ the claimed group of inventions to the requirements of the Articles 1349 and 1350 of the Civil Code of the Russian Federation has been revealed.

The set of claims is presented in page(s) 3, 4.

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(21) 2006116893/02

(51) IPC

C23C 30/00 (2006.01)

C23C 14/16 (2006.01)

C23C 14/24 (2006.01)

C23C 4/06 (2006.01)

C23C 4/12 (2006.01)

(57)

1. A protective layer for protecting a component against corrosion and oxidation at high temperatures, which consists of the following elements, wt. %:

rhenum 0.5–2,

chromium 15–21,

cobalt 24–26,

aluminum 9–11.5,

yttrium and/or at least one equivalent metal from the group including scandium and elements of rare earth metals 0.05–0.7,

ruthenium 0.0–1,

nickel and also manufacturing-related unavoidable impurities the remainder.

2. The protective layer according to claim 1, comprising the following elements, wt. %:

rhenum 1–1.8,

chromium 16–18,

aluminum 9.5–11,

yttrium and/or at least one equivalent metal from the group including scandium and elements of rare earth metals 0.3–0.5.

3. The protective layer according to claim 2, comprising the following elements, wt. %:

rhenum 1.5,

chromium 17,

cobalt 25,

aluminum 10,

yttrium and/or at least one equivalent metal from the group including scandium and elements of rare earth metals 0.4.

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4. The protective layer according to any one of claims 1-3, which contains maximum 6 vol.% of chromium-rhenium precipitates.

5. The protective layer according to any one of claims 1-3, on which a thermal isolation layer is applied.

6. A component, in particular a gas turbine component, which, for protection against corrosion and oxidation at high temperatures, comprises the protective layer according to any one of claims 1-4.

7. A method for producing a protective layer, including applying a powder, characterised in that the powder contains trace elements of carbon, oxygen, nitrogen and hydrogen in sum $< 0.5\%$, wherein

the carbon content is $< 250 \cdot 10^{-4}$,

the oxygen content is $< 400 \cdot 10^{-4}$,

the nitrogen content is $< 100 \cdot 10^{-4}$,

the hydrogen content is $< 50 \cdot 10^{-4}$, and the protective layer according to claim 1 is produced.

8. The method according to claim 7, characterised in that the powder is applied by spraying.

9. The method according to claim 7, characterised in that the powder is applied by evaporation.

(56) US 6280857 B1, 28.08.2001;

RU 2147624 C1, 20.04.2000;

RU 2149202 C1, 20.05.2000;

US 2003/0207151 A1, 06.11.2003;

US 6346134 B1, 12.02.2002;

US 5273712 A, 28.12.1993.

The original specification of the Applicant and an amended abstract shall be used in publication of the patent.

Enclosure with the Report: 1. Amended abstract on 1 sheet in 1 copy.

Deputy Chief

of the Metallurgy and Mechanical

Engineering Department of the FGU FIIP

I. I. Poymenova

Signature

8-499-240-55-82

A. A. Pimenova

8-499-240-55-82

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To the application No: 2006116893/02

(54) PROTECTIVE LAYER FOR THE PROTECTION OF A COMPONENT AGAINST
CORROSION AND OXIDATION AT ELEVATED TEMPERATURES, AND COMPONENT

ABSTRACT

(57) The invention relates to a protective layer for protecting a component against corrosion and oxidation at high temperatures. The protective layer consists of the following elements, wt. %: rhenium 0.5–2, chromium 15–21, cobalt 24–26, aluminum 9–11.5, yttrium and/or at least one equivalent metal from the group including scandium and elements of rare earth metals 0.05–0.7, ruthenium 0.0–1, nickel and also manufacturing-related unavoidable impurities the remainder. The protective layer may contain trace elements of carbon, oxygen, nitrogen and hydrogen in sum < 0.5%, wherein the carbon content is $< 250 \cdot 10^{-4}$, the oxygen content is $< 400 \cdot 10^{-4}$, the nitrogen content is $< 100 \cdot 10^{-4}$, and the hydrogen content is $< 50 \cdot 10^{-4}$. Produced is a protective layer which has a high heat-resistance at corrosion and oxidation, a good long-term stability and is adapted to mechanical loading, in particular in a gas turbine at a high temperature. 3 indep. claims and 6 dep. claims, 5 Figs.

Reviewer A. A. Pimenova